



LEFT PARADUODENAL HERNIA WITH ACUTE INTESTINAL OBSTRUCTION TREATED BY AN ALTERNATIVE SURGICAL TECHNIQUE: A CASE REPORT

Semra Dogan¹ | Nefise Cagla Tarhan²

¹ MD, General Surgeon, TOBB Economy and Technology University Hospital, Department of General Surgery.

² MD, Professor of Radiology, TOBB Economy and Technology University Hospital, Department of Radiology.

ABSTRACT

Paraduodenal hernia, the most common type of internal herniations, is rare in the etiology of intestinal obstruction. The left paraduodenal hernia (LPDH) is the most frequent type of internal hernias. We report a case of a LPDH presented with partial small bowel obstruction in a 38-year-old male without prior abdominal pain history and no previous abdominal surgery. LPDH was diagnosed with contrast enhanced multidetector computed tomography.

A surgical reduction of hernia and widening of the hernia neck were performed. Reduction of hernia content followed by widening of the defect is a safe and effective alternative treatment to primary repair.

KEYWORDS: left paraduodenal hernia, small bowel obstructions.

Introduction

Internal herniation is described as herniation of the small intestine through a mesenteric defect within the abdominal cavity (1). Internal hernias are rare causes of bowel obstruction, accounting for less than 1% of cases (2). Paraduodenal hernia (PDH) is by far the most common form of congenital internal hernias, accounting for up to 53% of all reported cases (3) and is responsible for approximately 1% of all small bowel obstructions (4). PDH occurs more commonly on the left side than on the right (5). Clinical diagnosis of LPDH is difficult as symptoms are non-specific. Therefore, a timely and correct diagnosis with a rapid diagnostic tool is mandatory (6).

Herein we have shared our experience of a 38-year-old male patient operated on a LPDH.

Case Presentation

A 38-year-old male patient was admitted to our emergency department with abdominal pain. He had no previous surgery and recurrent abdominal pain history. Physical examination showed a prominent abdominal distension, severe tenderness and mass in left upper quadrant. The leukocyte count was 13350/uL, C-reactive protein count was 21.7 mg/L and the other biochemical values were within normal limits. Plain abdominal film taken in erect position was unremarkable. Abdominal multidetector computed tomography (CT) was performed (Ingenuity Core 128, Philips) after oral and intravenous contrast administration demonstrating dilatation of proximal jejunal bowel loops. Passage of contrast was delayed. There was a saclike mass of dilated proximal jejunal segments in left upper quadrant next to the ascending duodenum (**Figure 1-2**). The inferior mesenteric vein was seen as displaced anterolaterally by the dilated sac on axial images (**Figure 1**). There were engorged mesenteric vessels between the bowel loops within the sac (**Figure 3**). There was also some peritoneal fluid within the sac and between bowel loops (**Figure 1**). The contrast enhancement of bowel walls was normal. Distal small bowel loops and the colon segments did not show any dilatation.

A nasogastric tube decompression was provided. Intravenous fluid replacement and antibiotic treatment was planned. A laparoscopic exploration was done through a subumbilical 1 cm incision. On exploration, there were exudative fluid around cecum and dilated proximal jejunal segments. The jejunal segments was grasped and withdrawn, but it could not be mobilized. The operation was then converted to laparotomy. At laparotomy proximal jejunal segments were observed to have herniated in the left paraduodenal region into a sac like opening (the fossa of Landzert). Jejunal segments were reduced by manual traction. Approximately 100 cm of jejunal loop had ischemic changes but after hot peritoneal washing, peristalsis and bowel color was improved and the resection was not needed. LPDH orifice was wide for primary repair so the sac was widened by making it continuous with the peritoneal cavity to prevent future incarceration of bowel loops. The patient was discharged on the eighth post-operative day. Follow-up in 6 months revealed no recurrence of clinical symptoms.

Discussion

Internal hernias are the protrusion of a viscous through a normal or abnormal opening within the abdominal cavity and an uncommon cause of intestinal obstruction. Among all congenital hernias, paraduodenal hernias are the most common type with an overall incidence of approximately 50% of all internal her-

nias (3, 7). Paraduodenal hernias were defined by Treitz in 1857 and the first classification in left and right was done by Jönnesco in 1889. The most likely mechanism for the development of paraduodenal hernias is an error in intestinal rotation and fixation that leads to entrapment of the small bowel between the mesocolon and the posterior abdominal wall. Paraduodenal hernias are classified in two categories according to their right or left sided localization.

Left paraduodenal hernias originate at the fossa of Landzert, this fossa is just lateral to the fourth part of the duodenum and posterior to the inferior mesenteric vein and left branches of the middle colic artery (8). At autopsy Landzert's fossa has been found to be present in approximately 2% of the population (9). Right paraduodenal hernia involves Waldeyer's fossa located behind the superior mesenteric artery inferior to the third portion of the duodenum. At autopsy Waldeyer's fossa has been found in approximately 1% (10). Patients with LPDH usually present between fourth - sixth decades and median age at diagnosis is 38.5 years as in our patient (7). Paraduodenal hernias are more common in males with male to female ratio is 3:1 (7).

Clinical presentation of LPDH is various: Intermittent upper abdominal pain, distension, nausea, vomiting. Sometimes as in our case clustering of dilated loops of small bowel may be palpable. It can also be asymptomatic throughout life and patient with LPDH incidentally are detected during laparotomy or autopsy (11). The laboratory findings are generally inconclusive but they may be useful in case of biochemical changes related to the presence of obstruction, ischemia or necrosis in herniated bowel loops. Diagnosis of LPDH is difficult due to changeable clinical presentation and unclear findings during the physical examination. In our case at physical examination the patient showed the findings of intestinal obstruction.

Radiological examination is essential for the diagnosis. Abdominal X-ray taken in erect position may give information about gastrointestinal system and it may demonstrate air-fluid levels in the left upper quadrant. Abdominal ultrasonography is another diagnostic imaging modality. It may show dilated intestinal segments in cases of intestinal obstruction.

Abdominal CT with oral and intravenous contrast is the imaging modality of choice in these cases. CT scan as in our case usually demonstrates a cluster of dilated small bowel loops, a saclike mass with encapsulation at the ligament of Treitz, duodeno-jejunal junction depression, mass effect on the posterior stomach wall, engorgement and crowding of the mesenteric vessels with frequently right displacement of the main mesenteric trunk, anterior and upward displacement of the inferior mesenteric vein that lie in the ventral circumference of the hernia orifice and depression of the transverse colon (12,13). In our case; we have demonstrated dilated proximal jejunal loops, sac-like structure with dilated bowel loops, peritoneal fluid and engorged mesenteric veins, displaced inferior mesenteric vein on axial and coronal sections.

Treatment of left paraduodenal hernia requires surgery. As for, the lifetime risk of incarceration of LPDH is reported to be approximately 50%, regarding the risk of incarceration of PDH mortality as high as 20-50%, it is recommended that all incidental LPDH be surgically corrected (14). Treatment methods include explorative laparotomy, reduction of the herniated small bowel loops and repair of the hernia. During closure of the defect with non-absorbable sutures attention

should be given to avoid injury to the inferior mesenteric vein, located just anterior and lateral to the orifice. An alternative surgical approach as we performed in this case is to widen the hernia orifice by making it continuous with the peritoneal cavity to prevent future incarceration of bowel loops (4). This alternative approach would be a safe alternative especially when the opening is wider and primary repair is not possible. In cases of presence of necrosis or perforation, resection of the bowel loops should be performed. Another surgical management is laparoscopic intervention recommended for uncomplicated cases (15). Laparoscopic approach would be expected to reduce postoperative pain and hospital stay. In our case, we initially started with laparoscopic approach but the bowel loops could not be reduced from the defect so the approach was converted to laparotomy. Although the procedure was turned to laparotomy post-operative hospital stay was not long and there were no complications.

Conclusion

LPDH is a relatively rare cause of small bowel obstruction. CT is the gold standard for correct diagnosis. Treatment of LPD hernia is surgery, also in asymptomatic cases, to reduce the need of urgent surgery in cases of obstruction and the complications of long term herniations. Treatment methods include reduction of the hernia and in our case widening of the sac to prevent future recurrent herniations. Timely and correct diagnosis and prompt surgical treatment is essential to prevent the complications.

FIGURE LEGENDS

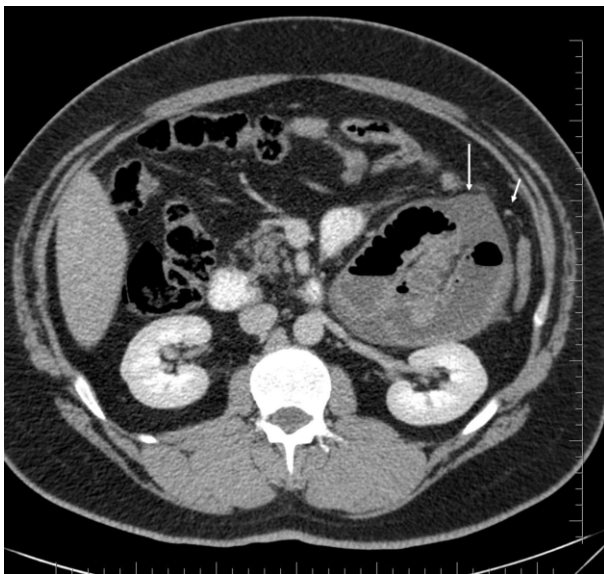


Figure 1. Oral and intravenous contrast enhanced MDCT images. Axial CT image from the mid-abdomen shows a saclike mass of dilated proximal jejunal segments in left upper quadrant next to the ascending duodenum. There is displacement of the inferior mesenteric vein anteriorly and laterally by the mass (short arrow). There is also free peritoneal fluid within the sac (long arrow).



Figure 2. The mass of bowel loops is also demonstrated on coronal multiplanar reformat image (arrows).



Figure 3. On a more frontal coronal MPR view, the engorged mesenteric vessels are shown between the bowel loops within the sac (arrows). The dilated proximal jejunal segments with oral contrast is also seen on this image.

REFERENCES

- Blachar, A., Federle, MP. (2002). Internal Hernia: an increasingly common cause of small bowel obstruction. *Semin Ultrasound CT MR*, 23, p.174-183
- Newson, BD., Kukora, JS. (1986). Congenital and acquired internal hernias: unusual causes of small bowel obstruction. *Am J Surg*, 152, p.279-284
- Hussein, M., Khreiss, M., Al-Helou, G., Alaeddine, M., Elias, E., Abi Saad, GS. (2012). Laparoscopic repair of a left paraduodenal hernia presenting with acute bowel obstruction: report of case. *Surg Laparosc Endosc Percutan Tech*, 22, p. e28-30
- Huang, YM., Chou, AS., Wu, YK., Wu, CC., Lee, MC., Chen, HT., et al. (2005). Left paraduodenal hernia presenting as recurrent small bowel obstruction. *World J Gastroenterol*, 11, p. 6557-6559
- Dayananda, L., Sreekumar, KP., Moorthy, S., Prabhu, NK. (2006). Paraduodenal Hernias-A pictorial essay. *Ind J Radio Imag*, 16, p. 467-71
- Khalailieh, A., et al. (2010). Left laparoscopic paraduodenal hernia repair. *Surgical endosc*, 24(6), p. 1486-1489
- Khan, MA., Lo, AY., Vande Maele, DM. (1998). Paraduodenal hernia. *Am Surg*, 64(12), p. 1218-1222
- Zonca, P., Maly, T., Mole, DJ., Stigler, J. (2008). Treitz's hernia. *Hernia*, 12, p. 531-534
- Blachar, A., Federle, MP. (2002). Internal hernia: an increasingly common cause of small bowel obstruction. *Semin Ultrasound CT MR*, 23(2), p. 174-83
- Selcuk, D., Kantarci, F., Ogüt, G., Korman, U. (2005). Radiological evaluation of the internal abdominal hernias. *Turk J Gastroenterol*, 16(2), p. 57-64
- Assenza, M., Rossi, D., Rossi, G., Reale, C., Simonelli, L., Romeo, V., Guerra, F., Modini, C. (2014). Laparoscopic Management of left paraduodenal hernia. *G Chir*, 35(7/8), p. 185-189
- Martin, LC., Merkle, EM., Thomson, WM. (2006). Review of internal hernias: radiographic and clinical findings. *AJR*, 186, p. 703-717
- Takeyama, N., Gokan, T., Ohgiya, Y., et al. (2005). CT of internal hernias. *Radiographics*, 25, p. 997-1015.
- Tun, MY., Choi, YM., Choi, SK., Kim, SJ., Ahn, SI., Kim, KR. (2010). Left paraduodenal hernia presenting with atypical symptoms. *Yonsei Med J*, 51, p. 787-789
- Parmar, B., Parmar, RS. (2010). Laparoscopic management of the left paraduodenal hernia. *J Minimal Access Surg*, 6, p. 122-124